PROGRESS REPORTS

FROM

EXPERIMENT STATIONS

SEASON 1951-52

SURVEY OF REPORTS

PUBLISHED BY

THE EMPIRE COTTON GROWING CORPORATION,
12 CHANTREY HOUSE, ECCLESTON STREET,
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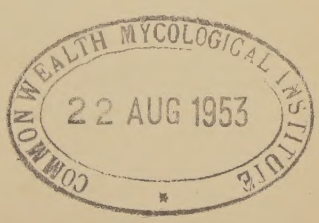

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PROGRESS REPORT FROM EXPERIMENT STATIONS. SEASON 1951-52.

A full list of the reports published for the season 1951-52 is given below; the price post free is 7/6d. for the set of 12, or 9d. each for individual reports.

1. Cotton Research Station, Namulonge, Uganda.
2. Anglo-Egyptian Sudan.
3. Kenya—Nyanza Province.
4. Tanganyika—Lake Province.
5. ,, —Eastern Province (covering seasons 1950, 1951 and 1952).
6. Nyasaland.
7. Southern Rhodesia.
8. Northern Nigeria.
9. Aden.
10. West Indies.
11. Queensland, Australia.
12. Survey of Reports for 1951-52.

NOTE.

The progress reports published for the season 1951-52 cover four aspects of the Corporation's work.

(1) The report from the Cotton Research Station at Namulonge in Uganda. This is the only station at which members of the Corporation's staff are working which can be described as a Corporation Station. It is staffed by the Corporation, who finance it with the aid of grants made by the Colonial Office and the Governments of Uganda, Tanganyika, Nigeria, Kenya, Nyasaland and the Anglo-Egyptian Sudan.

(2) At other stations, in the Sudan, Kenya, Tanganyika, Nyasaland, Nigeria and the West Indies, members of the Corporation's staff are working on Government Experiment Stations, and are provided by the Governments concerned with housing and laboratory facilities and local field staff.

(3) The report from Aden has been contributed by a member of the Corporation's staff with long experience in the Sudan, who was seconded to that country for part of the season, in order to help to establish the new cotton growing industry on sound lines.

(4) Reports from Queensland and Southern Rhodesia have been written by staff employed by the countries concerned and not by officers of the Corporation. They have, however, been included in this series, by courtesy of the Governments, in view of the fact that the present work is a continuation of cotton research work started many years ago by the Corporation.

SURVEY OF PROGRESS REPORTS FOR THE SEASON 1951-52.

BY

J. B. HUTCHINSON.

General.

Three of the territories covered by these reports, Northern Nigeria (110,000 bales), the Lake Province of Tanganyika (71,000 bales) and Southern Rhodesia (9,500 bales) reaped record crops. Very satisfactory progress is also recorded from Nyasaland, where the adoption of summer cropping in the Lower River has led to a great reduction in bollworm losses and a handsome improvement in the crop. In each of these territories the improvement reflects a real advance in crop production, and not merely favourable climatic conditions. Aden again produced a useful crop of Sudan Egyptian type cotton but the irrigated areas of the Sudan, except for two new blocks in the Gezira, had a poor season.

Crop Husbandry.

Very diverse soil fertility problems come under discussion. The discrepancy in yield between new and old land in irrigated regions is emphasised in the Sudan report, where the average yield in the Gezira is recorded as 935 lb. seed cotton per acre, whereas the two newly irrigated blocks averaged 1,500 and 1,684 lb. per acre. In Aden the yield dropped from 1,350 lb. seed cotton per acre in 1950-51 to 800 lb. in 1951-52, owing largely to a fall in the standards of cultivation.

In the Lake Province of Tanganyika such improvements in husbandry as ridge tying, early planting and early weeding have been the subject of extensive propaganda by the Agricultural Department and Lake Province Cotton Committee staffs, and have contributed, along with the issue of improved seed, to the production of a record crop.

An interesting six year rotation trial at Domira Bay in Nyasaland was complicated by the occurrence in years 3 and 4 of the worst two seasons in the history of the station. Nevertheless it is evident that rotation is very advantageous to the maize crop. Wherever two crops of maize were grown consecutively, the yield of the second was little more than half that of the first. Cotton was not grown consecutively often enough to assess the effect of rotation on cotton yields.

At Namulonge the rains persisted into the latter part of the cotton season. In consequence the yield of August plantings was almost 75%

of that of early June plantings, instead of only 50% as in the previous year. This striking confirmation of the belief that water supply is the dominant factor in cotton yields in Uganda lends urgency to the programme of studies of rainfall intensity, run-off, percolation and soil moisture.

Experience with mechanical picking is limited to Queensland and Southern Rhodesia. Queensland reports fair success (80-90% of the seed cotton picked) in spite of unsatisfactory plant habit. Southern Rhodesia gives data on percentage of seed cotton picked, and ginnery, blowroom and card losses for picker class seed cotton. Though machine picking is still far off in the peasant cotton areas, the data now being accumulated on the performance of mechanical pickers are of great value in keeping Commonwealth territories in touch with current development.

Entomology.

The need for an assessment of the gains to be obtained by pest control is apparent throughout the reports. In Nigeria, insecticidal treatments reduced the incidence of red bollworm without increasing yield proportionately, and the need to assess the significance of the damage caused is emphasised in discussing the importance of *Campylomma*. In Queensland large populations of American bollworm were reported, and spraying was resorted to. In spite of the spraying, damage as estimated by terminal loss was heavy, but there was nevertheless no suggestion of corresponding yield losses. In the Nyanza Province of Kenya progress is reported in sorting out which pests are important, and the part played by American bollworm is emphasised for the first time. At Namulonge spraying resulted in an increase in yield, but a critical analysis of the data showed that it came from the control of bollworms and not of *Lygus*.

Spectacular results were obtained at Ilonga in Eastern Tanganyika from the control of American bollworm with DDT. Treated plots yielded from 900 to 1,300 lb. seed cotton per acre, against a "control" yield of 13 lb. per acre.

Plant Pathology.

Bacterial blight is by far the most important disease under study, and further progress has been made in the assessment of the various kinds of damage which it causes. In particular, the importance of boll disease is receiving increasing attention. Seed treatment, which is practised on a considerable and increasing scale in Uganda, was started in the Lake Province of Tanganyika. Experimental data show that a large measure of protection from seed-borne infection is achieved

by seed treatment, but serious re-infection may take place from trash-borne infection in the soil. It is suggested that in Tanganyika at least two grain crops would be necessary between cotton crops to ensure adequate control of trash-borne infection. Thus, in order to reap the benefit of seed disinfection, crop rotation must be practised.

Plant Breeding.

The improved 47/10 strain is now being multiplied for use in Eastern Tanganyika. S47 from Uganda was issued in the Northern part of the Nyanza province of Kenya. Elsewhere, existing seed multiplication schemes have gone ahead well. 26C was issued to two-thirds of the cotton growing area of Northern Nigeria, and Uk strains now cover the whole of the Lake Province of Tanganyika.

Interesting variations in breeding technique are reported from several stations. Nigeria is following the Lake Province of Tanganyika in making up multi-line strains. In the Sudan, reselection or "filtering" is to be confined to every second or every third generation, to allow of interbreeding and segregation in between. At Namulonge the early stages of testing have been elaborated to provide information on the possibility of strain × environment interactions.

Breeding for resistance to bacterial blight is a major part of the programme at Namulonge and Ukiriguru, and is receiving some attention at most stations. In the Sudan, breeding for jassid resistance is receiving increasing attention as adequate resistance to blackarm is achieved. Resistance to leafcurl has been improved enormously with comparatively little effort by the judicious exercise of selection in material bred for other purposes.

Conclusion.

Substantial increases in crop are recorded in several of the producing territories, and a major reduction due to adverse weather in one. In all areas, research and investigation are providing strong support for further development.

Received April 1953.

CURRENT COTTON CROPS.

(in bales of 400 lb.)

	Record Crops		*Production*		
	Season	*Amount*	1921-22 (*when the Corporation was established*)	*Average 3 years* 1948-49 *to* 1950-51	1951-52
Anglo-Egyptian Sudan	1950-51	526,592	24,074	408,955	312,886
Uganda	1937-38	417,179	48,290	359,164	380,257
Kenya	1936-37	22,166	417	10,503	15,882
Tanganyika	1951-52	77,875	7,175	49,495	*77,875*
Nyasaland	1934-35	21,006	5,422	5,561	12,557
Northern Rhodesia	1925-26	506	80	nil	233
Southern Rhodesia	1951-52	9,475	nil	3,760	9,475
South Africa and Swaziland ...	1951-52	35,000	2,740	8,930	*35,000*
Nigeria*	1951-52	113,510	15,096	63,245	113,510
West Indies	1940-41	9,312	4,314	6,152	5,810
Australia	1933-34	21,924	3,140	1,004	1,937
Aden	1950-51	9,954	nil	3,887	7,206
Cyprus	1934-35	5,214	1,505	2,851	3,127
Ceylon	1948-49	840	nil	570	*547*
			112,253	924,077	*976,302*

*Exports only. Figures in italics are estimates.

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* "Cotton Growing in Nigeria." Sir Hector Duff. 1921.

"The Extension of Cotton Cultivation in Tanganyika Territory." Major Hastings Horne. 1922. Price **2s.**

* "Cotton Cultivation in Nyasaland." H. C. Sampson. 1922.

* "Cotton Growing within the British Empire." L. G. Killby. 1924.

"Cotton Growing in South Africa." G. F. Keatinge. 1925. Price **2s.**

"A Cotton Research Station for the British Empire." Professor J. B. Farmer and Mr. L. G. Killby. 1925. Price **2s.**

"Report on the Cotton-Growing Industry in Uganda, Kenya, and the Mwanza District of Tanganyika." Col. C. N. French. 1925. Price **1s. 3d.**

"Memorandum by the Mechanical Transport Sub-Committee." Mr. G. H. Baillie, Mr. R. H. Brackenbury, Col. C. N. French. 1925. Price **2s.**

"Report on the Cotton-Growing Industry of Nigeria, 1926." Col. C. N. French. 1926. Price **2s.**

* "The Principles and Practice of Yield Trials." F. L. Engledow and G. Udny Yule. 1926.

"Report on Suitable Rotation Crops for Cotton." H. C. Sampson. 1927. Price **1s.**

"Cotton Growing in Southern Africa and the Rhodesias." Report on a Tour undertaken by Sir James Currie, Mr. J. S. Addison, and Mr. H. C. Jefferys. 1927. Price **2s.**

* "Reports from Turkestan Plant Breeding Station, Tashkent." 1928.

"Review of the Situation in the Principal Cotton-Growing Territories of the Empire, and a Summary of the Main Activities of the Corporation since their Formation." 1928. Price **9d.**

"Report on Cotton Breeding and Seed Supply in Nigeria, 1928." F. L. Engledow and C. N. French. Price **2s.**

* "Conference of Workers on Cotton-Growing Problems, held August, 1930." Papers and Discussions.

"Conference of Workers on Cotton-Growing Problems, held July, 1934." Papers and Discussions. Price **2s 6d.**

* "The Principles and Practice of Field Experimentation." J. Wishart and H. G. Sanders. 1935.

"Cotton Pest Control Work in Southern and Central Africa and the Rhodesias." J. W. Munro. 1937. Price **2s. 6d.**

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"Spinning Test Methods—Shirley Institute, 1948." C. Underwood. 1949. Price **1s.**

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OVERSEAS STAFF (at 31st March 1953).

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